AMENDMENTS TO THE SPECIFICATION

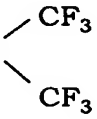
Please replace the second paragraph on page 15 with the following amended paragraph:

~~Fig. 2 is a~~ Figs. 2(a), 2(b), 2(c) and 2(d) are flow charts for explaining production steps of an optical waveguide device produced using the member for an optical waveguide of the present invention.

Please replace the second paragraph on page 38 with the following amended paragraph:

Examples thereof are preferably structural units derived from monomers such as:

$CF_2=CF_2$, $CF_2=CH_2$, $CF_2=CFCl$, $CF_2=CFCF_3$,



, $CF_2=CFO(CF_2)_nF$ (n: from 1 to 5), $CH_2=C(CF_3)_2$,

$CF_2=CFH$, $CF_2=CCl_2$, $CF_2=CFOCF_2CFO\text{-}C_3F_7$,

$CH_2=CF\text{-}(CF_2)_n\text{-}Z^2$ (Z^2 is as defined in the ~~formula (4)~~ formula (5), n is from 1 to 10)

and

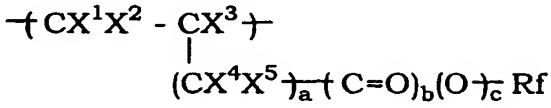
$CH_2=CHOCH_2\text{-}(CF_2)_n\text{-}Z^2$ (Z^2 is as defined in the ~~formula (4)~~ formula (5), n is from 1 to 10)

Please replace the second paragraph bridging page 48 through 51 with the following amended paragraph:

Examples of the curable fluorine-containing polymer (I) represented by the above-mentioned formula (1) are:
a fluorine-containing polymer (Ia) having crosslinkable group which has a number average molecular weight of from 500 to 1,000,000 and is represented by the formula (2):

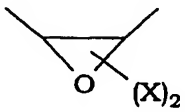
$$\text{- (M4) - (B) -} \qquad (2)$$

wherein the structural unit M4 is a structural unit derived from a fluorine-containing ethylenic monomer and represented by the formula (M4):

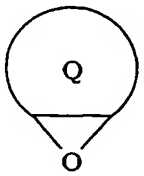


(M4)

wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3; X^4 and X^5 are the same or different and each is H, F or CF_3; Rf is an organic group in which 1 to 3 Y^2 (Y^2 is an organic group having 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:



wherein X are the same or different and each is a hydrogen atom, a fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms, or an organic group having 3 to 100 carbon atoms and 1 to 5 structures represented by the formula:



wherein Q is a monovalent or divalent organic group of monocyclic, polycyclic or heterocyclic structure having 3 to 100 carbon atoms in which hydrogen atom of Q may be substituted with the mentioned X) are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1,

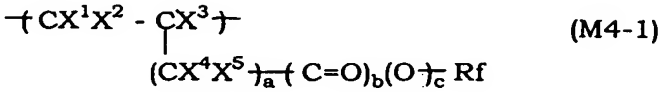
the structural unit B is a structural unit derived from a monomer copolymerizable with the fluorine-containing ethylenic monomer for the structural unit represented by the formula (M4), and

the structural units M4 and B are contained in amounts of from 0.1 to 100 % by mole and from 0 to 99.9 % by mole, respectively, and

a fluorine-containing polymer (Ib) having crosslinkable group which has a number average molecular weight of from 500 to 1,000,000 and is represented by the formula (2-1):

$$\text{-(M4)-(B)-} \qquad (2\text{-}1)$$

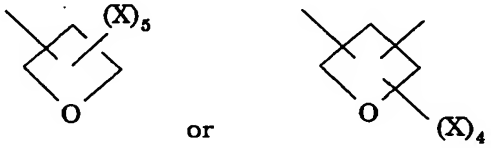
wherein the structural unit M4 is a structural unit derived from a fluorine-containing ethylenic monomer and represented by the formula (M4-1):



$$\left(CX^1X^2-CX^3\right) \qquad (M4\text{-}1)$$
$$\left(CX^4X^5\right)_a\left(C=O\right)_b\left(O\right)_c Rf$$

wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3; X^4 and X^5 are the same or different and each is H, F or CF_3; ~~Rf is a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms~~

~~and ether bond which has Y^{2a} (Y^{2a} is an organic group having 3 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of~~: Rf is an organic group in which 1 to 3 Y^{2a} (Y^{2a} is an organic group having 3 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:



~~wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms~~ wherein X are the same or different and each is a hydrogen atom, a fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms) are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1,

the structural unit B is a structural unit derived from a monomer copolymerizable with the fluorine-containing ethylenic monomer for the structural unit represented by the formula (M4-1), and

the structural units M4 and B are contained in amounts of from 0.1 to 100 % by mole and from 0 to 99.9 % by mole, respectively. The fluorine-containing polymers (Ia) and (Ib) having crosslinkable group are novel polymers.

Please replace the third full paragraph on page 77 with the following amended paragraph:

The above-mentioned optical material for optical devices can be employed as the optical material for optical waveguide. Basically the explanation made supra with respect to the curable fluorine-containing polymer ~~(II)~~ (I) and the photo-curable fluorine-containing resin

composition can be applied as it is to the optical material for optical waveguide. Therefore explained below are mainly particulars to be noted for the optical waveguide.

Please replace the last paragraph on page 90 bridging page 91 with the following amended paragraph:

When the photo-curable fluorine-containing resin composition containing the photoacid generator (II) is used as the material for an antireflection film of the present invention, there can be used the same photoacid generator (initiator) (II) as exemplified supra in the explanation on the curable fluorine-containing resin composition. An amount and kind of the photoacid generator (II) can be selected optionally from the examples mentioned supra in consideration of kind (reactivity, content) of the crosslinkable cyclic ether structure in the fluorine-containing polymer ~~(II)~~ (I), curing conditions, a pot life of a coating, etc.

Please replace the last full paragraph on page 98 with the following amended paragraph:

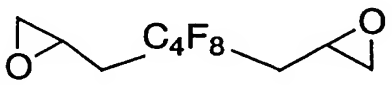
In the following Preparation Examples, Examples and Comparative Examples, equipment and measuring conditions used for evaluation of physical properties are as follows.
(1) NMR: available from BRUKER CO., LTD.
Measuring conditions of ^{1}H-NMR: 300 MHz (tetramethylsilane = 0 ppm)
Measuring conditions of ^{19}F-NMR: ~~300~~ 282 MHz (trichlorofluoromethane = 0 ppm)
(2) IR analysis: Measuring is carried out at room temperature with a Fourier-transform infrared spectrophotometer 1760X available from Perkin Elmer Co., Ltd.

Please replace the second paragraph on page 120 with the following amended paragraph:

A percentage of moisture absorption after allowing to stand at ~~85 % x 85 %~~ 85 °C x 85 % RH for 120 hours is obtained according to JIS K6911.

Please replace the paragraph on page 138 with the following amended paragraph:

To the materials for an antireflection film obtained in (1) of Examples ~~19 to 22~~ 20 to 23 was added, as a crosslinking agent, a bi-functional epoxy compound (crosslinking agent 1) represented by the formula:



in an amount of 0.3 equivalent to the polymer. By using the respective materials for an antireflection film, antireflection films were produced in the same manner as in (2) of ~~Example 15~~ Example 4, and (3) Measurement of refractive index before curing, (4) Measurement of refractive index of cured films, (5) Measurement of reflectance on one side of films and (6) Evaluation of physical properties (excluding shrinkage of volume and transparency) of antireflection films were carried out. The results are shown in Table 5.

Please replace the paragraph on page 141 with the following amended paragraph:

To the materials for an antireflection film obtained in (1) of Examples 20 to 23 was added, as a crosslinking agent, a bi-functional oxetane crosslinking agent 2 synthesized in Example 9 in an amount of 0.3 equivalent to the polymer. By using the respective materials for an antireflection film, antireflection films were produced in the same manner as in (2) of

Example 4, and (3) Measurement of refractive index before curing, (4) Measurement of refractive index of cured films, (5) Measurement of reflectance on one side of films and (6) Evaluation of physical properties (excluding shrinkage of volume and transparency) of antireflection films were carried out. The results are shown in Table 6.